

Remarks

Claims 1 and 5 through 12 are now pending.

Claim 1 has been significantly amended and claims 2, 3 and 4 cancelled.

Claim 7 has been amended in response to the Examiner's objections.

The Rejection

The following patents have been relied upon to reject various of the Applicants' claims:

U.S. Patents

4,249,588	Egan
4,487,892	Ohmori et al. (Ohmori)

U.S. Patents Applications

2003/0089438	Sandstrom et al. (Sandstrom)
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Foreign Patents

JP 8-324209	Japan 209
WO 02/40581)	Cole
SU 1625713	Russia

Rejection Under 35 U.S.C. Section 112, Claims 1 and 7

The Applicants' claims 1 and 7 have been amended in response to the Examiner's objections 35 U.S.C. Section 112, second paragraph.

Obviousness Type Double Patenting Rejection, Claims 1 through 8, 11 and 12

The Applicants' claims 1 through 8 and 11 through 12 have been provisionally rejected under the judicially created doctrine of obviousness type double patenting over claims 1 through 7 of U.S. Patent No. 6,672,350 in view of Cole and Japan 209 and optionally Egan. A reconsideration of the rejection of the Applicants' claims is requested in view of the Terminal Disclaimer submitted herewith as well as comments herein. Authorization is given to charge the fee for the Terminal Disclaimer in accordance with 37 C.F.R. Section 1.20(d) in the amount of \$110.00, or any other fees, to our Deposit Account No. 07-1725.

Accordingly, it is believed that a rejection of the Applicants' claims 1 through 7 based upon a combination of U.S. Patent No. 6,672,350 with Cole and Japan 209, and optionally with Egan would no longer apply,

Rejections Under 35 U.S.C. Section 103

A. Claims 1 through 4, 8 and 12 have been rejected under 35 U.S.C. Section 103(a) as being obvious in view of Japan 209.

B. Claims 5 and 6 have been rejected under 35 U.S.C. Section 103(a) as being obvious in view of a combination of Japan 209 and Cole or Egan.

C. Claims 7, 9 and 10 have been rejected under 35 U.S.C. Section 103(a) as being obvious in view of a combination of Japan 209 and Ohmori and Russia.

D. Claims 1 through 12 have been rejected under 35 U.S.C. Section 103(a) as being obvious in view of a combination of Sandstrom and Cole and Japan 209 and optionally Egan.

A reconsideration of the rejections of the Applicants' claims under 35 U.S.C. Section 103(a) is requested in view of amendments made to the claims and comments herein.

The Invention

It is important to appreciate that the invention of the Applicants' claims is directed to a tire with a tread which contains significantly spaced apart raised lugs designed to be shock absorbingly ground contacting. In particular, the raised lugs are intended to assume a significant shock absorbing responsibility for the tire itself and ultimately for the associated vehicle.

In order to promote the shock absorbing effect for the tire, the tire tread is provided with a cooperative combination of:

A. raised, spaced apart, lugs intended to be ground contacting, wherein the raised lugs have an average height of about 12.5 cm to about 80 cm; wherein the ratio of running surface of the tread lugs to the tread's gross dimensions is in a range of from about 15 to about 22 percent;

B. a rubber composition which is diene rubber based, butyl rubber based or a combination of diene rubber and butyl rubber based, and

C. said rubber composition having a closed cell structure;
wherein the density of the volumetric closed cell content of the tire tread, which includes the spaced apart tread lugs, is in a range of from about 2 to about 15 percent based upon a volume percent of cellular voids in the total volume of the tread rubber, and
wherein the average cellular size of the closed cells in the tread rubber is a range of from about 150 to about 350 microns.

Discussion

Rejections Under 35 U.S.C. Section 103

A. Rejection of Claims 1 through 4, 8 and 12 under 35 U.S.C. Section 103(a) as being obvious in view of Japan 209

Japan 209 relates, for example, to an agricultural tire which contains tread lugs whereby the tread lugs are covered with an anti mud sticking closed cell foam rubber layer.

Contrary to Japan 209, the tire tread of the Applicants' claimed invention relies upon its spaced apart raised lugs to provide a shock absorbing effect for the tire. For such purpose, the tire of the Applicants' claims, which includes the spaced apart raised lugs, is composed of a closed cellular rubber composition of defined density and cellular size instead of a more simple outer layer of the anti mud sticking closed cell foam rubber layer of Japan 209. Apparently, Japan 209 relies upon the outer closed cell foam rubber layer to become crushed in order for it to be "anti mud sticking".

Accordingly, it is contended that the defined closed cell structured rubber tread of the tire of the Applicants' claims 1 through 4, 8 and 12 is not obvious in view of Japan 209 with its crushable closed cell foam rubber being limited to an outer layer positioned over its tread lugs in the sense of 35 U.S.C. Section 103(a).

B. Rejection of Claims 5 and 6 under 35 U.S.C. Section 103(a) in view of a combination of Japan 209 and Cole or Egan

The Applicants' claims 5 and 6 relates to the choice of blowing agent for the Applicants defined closed cell structured rubber tread, including its tread lugs.

As pointed out above, Japan 209 is materially deficient for a purpose of rejecting the Applicants' claims in the sense of 35 U.S.C. Section 103(a).

The Cole and Egan references are apparently cited to illustrate blowing agents which may be used to create a closed cellular foam rubber. At most, a skilled person might visualize use of such blowing agents to create the crushable closed cell foam rubber outer layer taught in Japan 209.

However, in the absence of the Applicants' own specification and claims, there is no teaching or suggestion in Cole or Egan to use any blowing agent to create the closed cellular foam tire tread, which includes the shock absorbing spaced apart and raised tread lugs, for the tire of the Applicants' claimed invention.

Accordingly, it is contended that Cole or Egan does not remedy the material deficiency of Japan 209 and, moreover, that a prima facie case of obviousness of the invention of the Applicants' claims is not made out by the combination of Japan 209 and any of Cole and Egan in the sense of 35 U.S.C. Section 103(a).

C. Rejection of Claims 7, 9 and 10 under 35 U.S.C. Section 103(a) in view of a combination of Japan 209 and Ohmori and Russia

The Applicants' claim 7, dependent from claim 1, relates to an inclusion of a thin layer of a rubber blend positioned between its said tread and its carcass.

The Applicants' claim 9, dependent from claim 1, relates to the Applicants' tire wherein said tread is comprised of a copolymer of isobutylene and isoprene.

The Applicants' claim 10, dependent from claim 1, relates to the Applicants' tire wherein the tread is comprised of a blend of a diene-elastomer and a copolymer of isobutylene and isoprene.

As pointed out above, Japan 209 is materially deficient for a purpose of rejecting the Applicants' claimed invention as being obvious in the sense of 35 U.S.C. Section 103(a).

Ohmori relates to a rubber composition for tires comprised of a non-crystallizable resinous copolymers of alpha methyl styrene or styrene containing a diene and a rubber selected from identified rubbers. Ohmori does not teach or disclose a tire with a tread with substantial lugs composed of a closed cell rubber structure.

Accordingly, Ohmori is itself materially deficient and does not remedy the aforesaid material deficiencies of Japan 209 and a combination of Ohomoi and Japan 209 does not make out a prima facie case of obviousness of the Applicants' claimed invention in the sense of 35 U.S.C. Section 103(a).

The Russia document relates to a tire having a tread with a protective coating on its outer surface having good gas impermeability, such as for example, a tire to be used for agricultural purposes. It is not seen that Russia teaches or suggests any tire with any tread with substantial lugs composed of a closed cell rubber structure.

Accordingly, Russia itself is materially deficient and does not remedy the aforesaid material deficiencies of Japan 209 or Ohmori and a combination of Russia and any of Ohmori and Japan 209 does not make out a case of obviousness of the Applicants' claimed invention in the sense of 35 U.S.C. Section 103(a).

D. Rejection of Claims 1 through 12 under 35 U.S.C. Section 103(a) in view of a combination of Sandstrom and Cole and Japan 209 and optionally Egan

Sandstrom relates to a tire having a butyl rubber-based tread with substantial lugs to take advantage of shock absorbency of the butyl rubber. However, Sandstrom does not teach or disclose any tire tread composed of a closed cellular rubber. Accordingly, Sandstrom, by itself, is materially deficient for a purpose of rejecting the Applicants' claims 1-12 as being obvious in the sense of 354 U.S.C. Section 103(a).

Cole relates to a tire, such as a bicycle tire, which contains an "outer tire layer" of microcellular closed-cell sponge rubber created various blowing agents. However, Cole is not related to a tire of the Applicants' required type, namely a tire tread having significantly spaced

apart and significantly raised lugs which themselves required to be composed of a closed cellular structured rubber of defined cellular density and cell size.

It is contended that it would not be obvious to one having ordinary skill in the tire art to use the “outer tire layer” of Cole of a microcellular closed cell sponge rubber created with the Cole-indicated blowing agent(s) for the significantly lugged rubber tread of Sandstrom to arrive at the Applicants’ claimed invention in the absence of the Applicants’ own specification and claims without undue experimentation. It is contended that, at most, the disclosure of Cole amounts no more than an invitation to try the microcellular closed sponge rubber of Cole in the lugged tread of Sandstrom.

Accordingly, it is contended that Cole is materially deficient, and does not correct the aforesaid deficiency of Sandstrom for rejecting the Applicants’ claims 1 through 12 as being obvious in the sense of 35 U.S. C. Section 103(a). It is contended that the combination of Sandstrom and Cole does not make out a prima facie case of obviousness of the Applicants’ claimed invention in the sense of 35 U.S.C. Section 103(a).

As pointed out above, Japan 209 is materially deficient for a purpose of rejecting the Applicants’ claimed invention as being obvious in the sense of 35 U.S.C. Section 103(a). It is contended that Sandstrom and Cole, with their aforesaid individual and collective deficiencies, do not correct the significant deficiency of Japan 209, particularly without undue experimentation.

Accordingly, it is contended that a combination of Japan 209 and any of Sandstrom and Cole does not make out a prima facie case of obviousness of the Applicants’ claimed invention in the sense of 35 U.S.C. Section 103(a).

Egan relates to a tire having a rubber tread of a cellular structure for its ground-contacting portion. Egan is not directed to the tread of the Applicants’ claimed invention requiring significantly raised and spaced apart lugs in combination with the Applicants’ defined cellular density and cell size to cooperatively provide a shock absorbing effect for a

tire. Egan is thereby individually materially deficient, by itself, to reject the Applicants' claimed invention as being obvious in the sense of 35 U.S.C. Section 103(a).

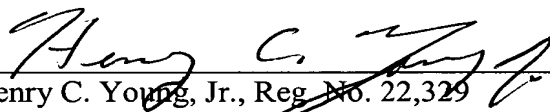
Moreover, Egan does not remedy the aforesaid deficiencies of any of Sandstrom, Cole and Japan 209, or their combination.

It is therefore contended that a prima facie case of obviousness of the invention of the Applicants' claims is not made out by a combination of Egan with any of Sandstrom, Cole and Japan 209 in the sense of 35 U.S.C. Section 103(a).

Conclusion

In view of the amendments made to the claims and comments herein it is contended that the Applicants' amended claims are patentably distinct from Japan 209 by itself of a combination thereof with any of Sandstrom Cole, Egan, Ohmori and Russia in the sense of 35 U.S.C. Section 103(a).

Respectfully submitted,


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